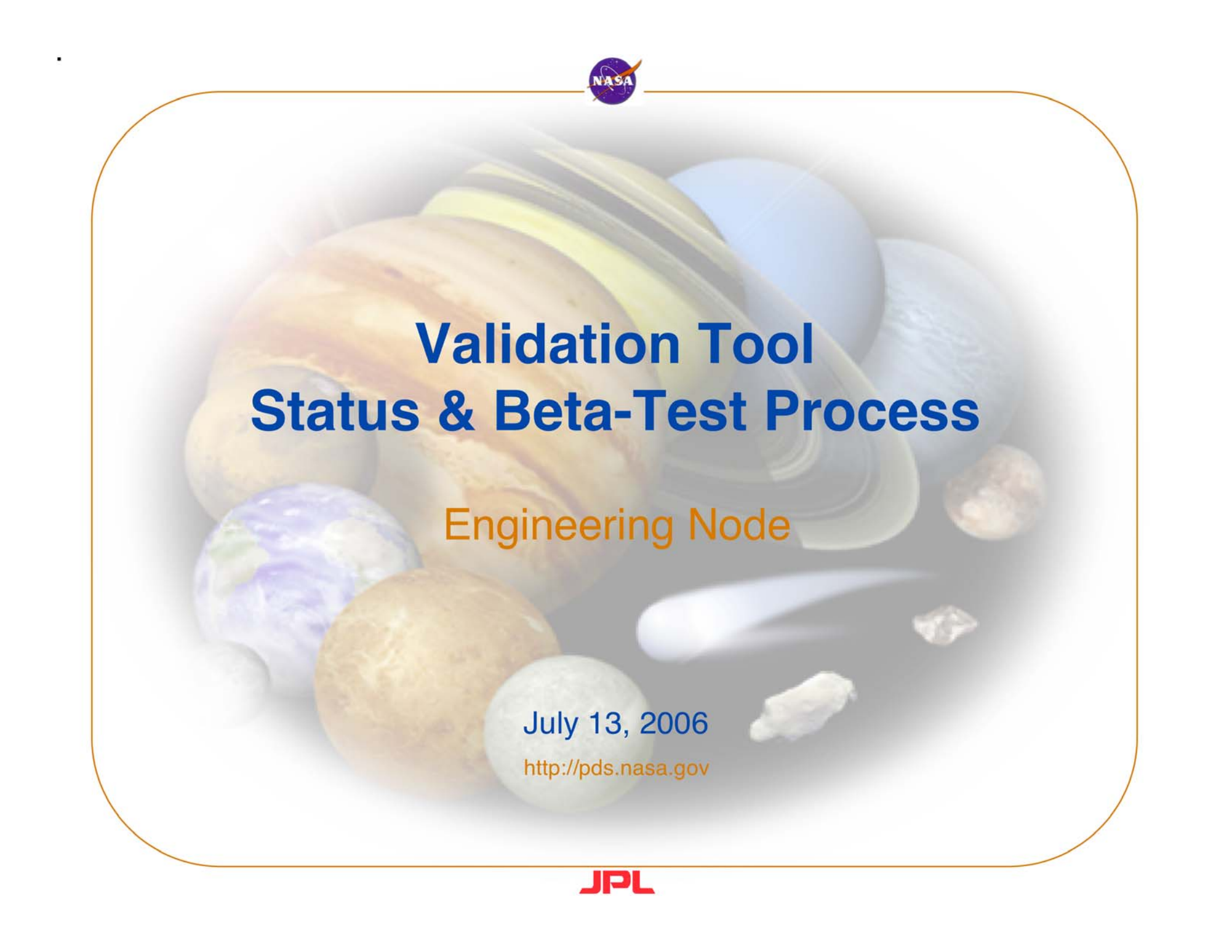

Validation Tool Status & Beta-Test Process

Engineering Node

July 13, 2006

http://pds.nasa.gov

Topics

- 6/1 Status Telecon Action Item Status
- Code Walk-through Summary
- Development Status
- Test Case Design
- Test Results Categories
- Beta Test Process
- Test Directory Structure
- Test Case Template
- Test Cases & Results Submission
- Schedule

Action Item Status (1 of 3)

- 1. Catalog File Value Extraction (Hardman; due 9-Jun-2006)

  EN will send a proposal to the node tech leads identifying a proposal (plan, date) for addressing keyword validation in catalog files.
  - Proposal sent out and responded to by GEO, PPI, Rings, RS and SBN/PSI.
  - Option 1 (full local dictionary) was preferred over Option 2 (separate dictionary-like file) (2-1) with the other 2 Nodes having no preference.
  - Postponing automated generation of the local dictionary was acceptable.

- 2. Validating Partial Labels (Hardman; due 9-Jun-2006)

  EN will send a proposal to the node tech leads which includes a set of requirements for addressing validation of partial labels.
  - Proposal sent out and responded to by GEO, PPI, Rings, RS and SBN/PSI.
  - Received 3 positive responses and 2 “I don’t care’s”.
  - Result: Partial labels will be validated with exceptions when contained in files with the .FMT extension.

- 3. PDS 2.x Validation (Hughes; due 9-Jun-2006)

  EN will investigate where PDS 2.x standards are still being used including investigation of Galileo.
  - E-mail sent out by Steve Hughes and responded to by GEO, IMG, PPI and RS.
  - General consensus was that only version 3.X (and beyond) needs to be supported by the Validation Tool.

Action Item Status (2 of 3)

- 4. SFDU Validation (Hardman; due 9-Jun-2006)

  EN will send a proposal on how SFDUs will be handled during validation and will update the state chart accordingly.
  - Proposal sent out and responded to by GEO, IMG, PPI, Rings and RS.
  - Although the proposal leans towards some form of validation, the consensus at the telecon and in the responses is that the tool should not validate the content of the SFDU header.
  - Assuming that is still the consensus, I would like to change the proposal to, the tool will recognize and report the existence of an SFDU in a PDS label.

- 5. Command-Line Options (All Node Tech Leads; due 9-Jun-2006)

  Nodes will send comments on the command line options and their preferred default state. The comments should be copied to all node tech leads.
  - Preferences received from ATM, GEO, IMG, PPI, RS and Rings.
  - A summary has been prepared that will be shared with the Nodes in the near future.

- 6. Requirements Document (Hardman; due 16-Jun-2006)

  EN will prepare and distribute version 1.3 of the Validation Tool Requirements Document including tracing to the newly approved level 3 requirements and any updates corresponding to RFA resolutions.
  - In progress. Will be coming out soon.

Action Item Status (3 of 3)

- 7. Release Matrix (Hardman; due 30-Jun-2006)

  EN will prepare a matrix detailing the requirements/capabilities targeted for the first release of the Validation Tool.
  - Yet to be completed.

- 8. Label Specific Rules (Hardman; due 30-Jun-2006)

  EN will send a list of label specific rules to the nodes defining the rules that are included in releases of the validation tool.
  - Yet to be completed.

- 9. Sample Reports (Hardman; due 30-Jun-2006)

  EN will send out sample reports to the nodes for review.
  - Yet to be completed.

- 10. Platform Testing (Law, All Node Tech Leads; due 30-Jun-2006)

  EN will provide a list of O/S versions the software has been tested on. The nodes will provide requests for additional testing on O/S versions, as necessary.
  - E-mail sent out by Emily Law and responded to by RS.
  - Additional requests include: MAC OSX 10.4.2, Solaris 8 and 9.

- 11. Data Object Validation (Hardman; due 30-Jun-2006)

  EN will provide a list of initial data objects that will be supported by the validation tool. These objects and the associated plan for adding additional objects will be discussed on a future telecon to be scheduled in four weeks.
  - Yet to be completed. (Similar to AI 7)

Code Walk-through Summary

- An external code walk-through was held back on June 21 and 22.
- Representatives from NASA HQ, PDS Program Management, Atmospheres, Imaging and Engineering attended.
- The following material was presented:
  - PDS Architecture Overview
  - PDS Standards
  - Validation Tool Requirements and Design
  - Validation Tool Source Code
  - Validation Tool Test Approach
- Several general comments and suggestions were offered by the review board as well as over 50 specific comments regarding the source code.
- Current efforts involving the grammar definition are a direct result of input received during this review.

Development Status

- Several good comments and suggestions from the code walk-through have resulted in a rework of the grammar implementation.
  - Most of the comments came from Mark Rose, so we have drafted him into this effort.
- Since the grammar definition is essentially the backbone of the tool, we want to make sure its implementation is solid before moving the tool into beta test.
- As predicted by many, the grammar implementation has exposed a number of issues with regard to how the PDS Standards are interpreted.
  - We are working these issues with Elizabeth, Ron and Steve.

Test Case Design

- Requirements Driven
- Two categories of Test Cases
  - PDS compliant
    - Designed to thoroughly demonstrate the many ways in which users can construct a PDS compliant label using ODL.
    - VTOOL will correctly identify these labels as being PDS compliant.
  - Non compliant
    - Designed to thoroughly evaluate how VTOOL reacts when it encounters a defect in the construction of a PDS label.
    - VTOOL will correctly identify these labels as being PDS non-compliant.
- The Regression Test Suite is comprised of 100+ PDS compliant and non compliant test cases.

Results – PASS / FAIL / LIEN

- Possible outcomes:
  - PASS
    - For PDS compliant label, VTOOL correctly identifies the label as being compliant.
    - For PDS non-compliant label, VTOOL correctly identifies those portions of the label that are non-compliant and accurately reports the anomalies.
  - FAIL
    - For PDS compliant label, VTOOL incorrectly identifies the label as being non-compliant.
    - For PDS non-compliant label, VTOOL is not able to identify the non-compliant portions and fails to report the anomalies.
- A LIEN will be noted in instances where VTOOL fails against a test case. The noted LIENs will be documented in the Test Report.

Beta Test

- Objective
  - An extension of I&T to involve Nodes in design and verification, to ensure the Tool meets Nodes' needs
- Approach
  - Nodes participation (voluntary basis)
  - Phased and iterative
  - Test cases generated by the Nodes will be fully incorporated into the final regression test suite
- Phase 1 participants
  - ATMOS, GEO and PPI
- Phase 2 participants
  - IMG, RINGS and SBN

Beta Test Process

- Distribute Validation Tool (EN)
  - Test case templates and examples
  - Executable
  - User Guide
  - Test Documents (Plan, Procedure, Report)
  - Integration Test Suite
- Generate Node specific test cases (Nodes)
- Execute test cases (Nodes)
- Submit test cases and results to EN (Nodes)
- Fix anomalies (EN)
- Incorporate test cases into regression test suite (EN)
- Execute regression test (EN)
- Report Beta Test and regression test results (EN)

Test Directory Structure

- Root
  - test_reports (contains all test reports of test cases in the test suite)
  - util (contains vtool and PSDD files)
  - test_case-1
    - test_case-1.pl (script to execute the test case)
    - baseline (contains files used to evaluate results of the test report)
    - config (contains files passed as parameters to vtool)
    - target
      - document (contains files referenced by pointers of type DOCUMENT)
      - label (contains files referenced by pointers of type STRUCTURE)
      - catalog (contains files referenced by pointers of type CATALOG)
      - index (contains index files)
      - data (contains the set of data product files)
      - local-ddict (contains the local data dictionary files)
  - test_case-2
  - test_case-3
  - test_case-n

Test Case Template

- Test Scenario ID
- Functional requirement ID
- Description of the Requirement
- Test Scenario Name
- Purpose
- Test Conditions
- Test Constraints
- Test Inputs
- Test Procedure
- Test Results
- Change Log

Test Cases & Results Submission

- Create test case
- Execute test script
- Compare test output against baseline
- Record results in “Test Results”
  - Identify test result category
  - Report anomaly if test fails
- Submit test case via email to Emily Law (emily.law@jpl.nasa.gov)

Schedule

- Status & Beta-Test Process Telecon (Jul 13, 2006)
- Beta Test Phase 1 (Jul 24 - Aug 11, 2006)
- Beta Test Status Telecon (The week of Aug 14, 2006)
- Beta Test Phase 2 (Aug 21 - Sept 8 2006)
- Post-Beta Test Telecon (The week of Sept 11, 2006)